

REMARKS

The Office Action indicated that Claims 33, 34 and 57 would be allowed if rewritten in independent form. Accordingly, Claim 58 corresponds to the allowed subject matter of Claim 33, while Claim 59 corresponds to the allowed subject matter of Claim 57.

The Office Action further acknowledged the deficiencies of the *Ribordy et al.* (U.S. Patent No. 5,036,581), but contended that combining the *Korsch* (U.S. Patent No. 4,057,381) was proper because of interchangeability between certain parts. The Office Action did not address the requirement of a teaching reference to suggest any interchangeability even if hypothetically such interchangeability of the *Ribordy et al.* reference was possible with the *Korsch* disclosure.

The Office Action claimed that apparatus claims directed to apparatus must be distinguished in terms of structure rather than function, and accordingly, justified a combination of references against the claims as presently rejected. Applicants have amended the independent Claims 29 and 56 to specifically provide apparatus structural features utilized in the present invention that cannot be found in either the *Ribordy et al.* nor the *Korsch* reference. Thus, hypothetically assuming a combination of the *Ribordy et al.* teaching of compacting cathode material in the interior of a battery case could be modified by the structure of the *Korsch* reference, it still could not teach an automatic apparatus for manufacturing batteries having a plurality of electrode pellets that are molded and inserted within a battery casing.

The economics of battery manufacturing are highly competitive, and any laborsaving features that will still provide a high quality product should be considered innovations in this field. By controlling the thickness of the powder mixture pellet so that there would not be any differences, it is capable of creating dry cells having an increased capacity to provide electric

current. The present invention provides two or more powder mixture pellets for insertion with a battery cell casing to both increase productivity and to reduce the overall cost. References can be made to pages 14-16 of the present specification for the advantages that can be achieved as now set forth in Claims 29 and 56.

The cited references do not teach a plurality of operating units movable along a concentric path with the molding units for transferring and retractably positioning a battery case above and in alignment with a die. Cases can be fed, for example, to a first insertion assembly station so that a case holding unit can hold and convey a case loaded with a first molded pellet at a first insertion assembly station to a second insertion assembly station wherein the second insertion assembly station can insert a second molded pellet adjacent to the first molded pellet. A case that is properly loaded with the molded pellets can then be removed, sealed with final processing, whereby a highly efficient automatic filling of a case with a plurality of molded pellets can be accomplished.

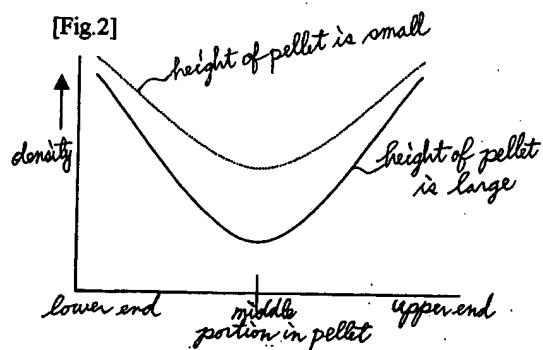
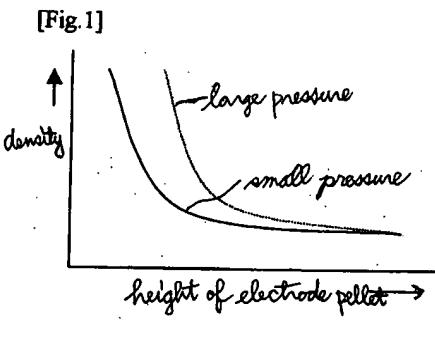
The *Korsch* reference was attempting to resolve a problem of a density variation in cup-shaped products. It did not teach nor address any issue of eliminating or minimizing any taper in a tubular or cylindrical electrode pellets so that a plurality of electrode pellets would have a uniform density and could be closely adhered adjacent to each other.

The *Ribordy et al.* reference taught manufacturing a dry cell battery directly in a steel casing and more specifically attempted to minimize the presence of any cathode powder mix between the anode core and the casing end. A shoulder punch in the teachings of the *Ribordy et al.* was driven upward to compact the cathode material directly within the casing; see Column 8, Lines 13-30. The *Ribordy et al.* reference did not teach molding by a pressure engagement between an upper plunger and a plunger that are driven by pressure rollers to create a pellet. In

fact, the *Ribordy et al.* teaching of manufacturing one continuous unitary cathode material directly within a steel cylindrical casing would teach away from providing a plurality of moldable pellets that are progressively inserted within a casing after each of the separate molding stages. In manufacturing batteries, it is important to achieve both a high and uniform density of electrode pellets because any decrease in density leads to an inferior product. The *Ribordy et al.* reference suggests packing the entire casing with only a single pressure plunger which would not be optimum for compacting material for use in a battery requiring a relatively greater density and height of compacted material.

The density of an electrode pellet decreases as the height of the electrode pellet increases even if greater amounts of applied pressure occur. In addition, the density will also vary within a single pellet depending on a location within that pellet. This is particularly a factor when the height of the pellet is relatively large.

The following Figures are for a graphic illustration of these arguments and are not drawn to a specific scale for a particular type of material.

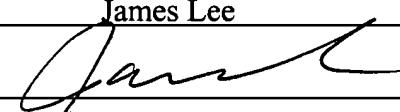


The present invention can achieve a high uniform density of electrode pellets by employing upper and lower plungers and further resolves the issues on the height of the molded powder material by employing a pair of separate pellets that can not only be molded and then inserted after the molding within the case with the assistance of, for example, of a center pin, but can further be directly inserted within the casing. A casing with one molded pellet can travel to a subsequent station for receiving a second molded pellet which is inserted into the casing.

These claimed structural features more than adequately distinguish over any combination of the references and, accordingly, it is believed that the application is now in condition for allowance. If the Examiner believes a telephone interview will help further the prosecution of this case, he is respectfully to contact the undersigned attorney at the listed telephone number.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 4, 2004.

By: James Lee



Signature

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Very truly yours,

SNELL & WILMER L.L.P.



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